



# Design Construction and Demonstration of a Robotic Platform Capable of Inspecting Unpiggable Gas Pipelines

DTPH56-05-T-0002

## PHMSA ACCOMPLISHMENTS

**Pipeline and Hazardous Materials Safety Administration**

**Pipeline Safety Research and Development**

**Technology Development for Improved Corrosion Mitigation**

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### Project Abstract

To develop a robotic platform that will allow the inspection of presently unpiggable gas transmission pipelines. The platform will be able to propel itself independently of flow conditions, and will be able to negotiate all obstacles encountered in a pipeline, such as mitered bends and plug valves. The robot will be powered by batteries. The operator will have live control of the robot using two-way through-the-pipe wireless communication, thus eliminating the need for any tether. The platform will be equipped with a segmented Remote Field Eddy Current sensor, also able to negotiate all pipeline obstacles.

PHMSA Funding: \$2,493,524

Public Project Page

<https://primis.phmsa.dot.gov/matrix/PrjHome.rdm?prj=159>

### NET Improvement

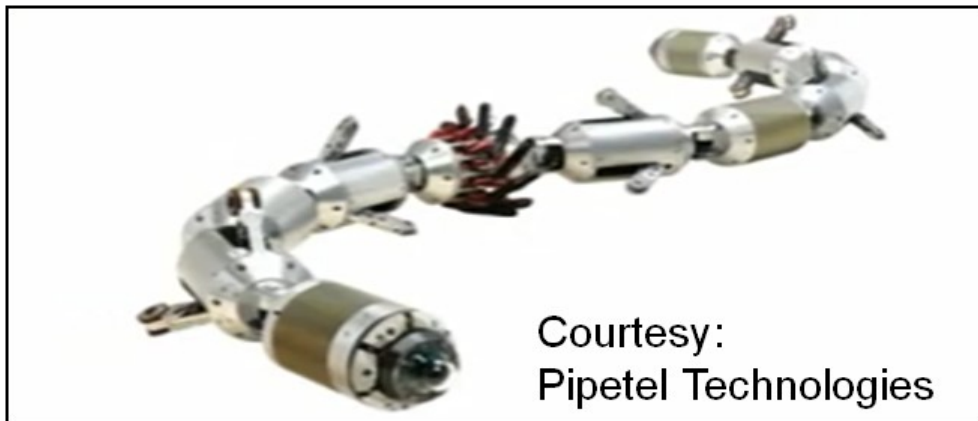
This work lead to the commercial deployment of the first ever inspection platform (Explorer II) and integrated sensor capable of internal unpiggable gas pipeline inspection. Explorer II is an untethered, modular, remotely controllable, self-powered inspection robot for the visual and non-destructive inspection of 6- and 8-inch natural gas transmission and distribution system pipelines.

**US Patent under DOT Contract:**

7,459,999B2

### Commercial Partner

Pipetel Technologies  
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Courtesy:  
Pipetel Technologies

<https://primis.phmsa.dot.gov/rd/performance.htm>